BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

DOCKET NO. 2019-185-E
DOCKET NO. 2019-186-E

In the Matter of	)	
	)	
South Carolina Energy Freedom Act (H.3659) Proceeding to Establish Duke Energy Carolinas, LLC's and Duke Energy Progress LLC's Standard Offer Avoided Cost Methodologies, Form Contract Power Purchase Agreements, Commitment to Sell Forms, and Any Other Terms or Conditions Necessary (Includes Small Power Producers as Defined in 16 United States Code 796, as Amended) – S.C. Code Ann. Section 58-41-20(A)	)	**DIRECT TESTIMONY OF GEORGE V. BROWN ON BEHALF OF DUKE ENERGY CAROLINAS, LLC AND DUKE ENERGY PROGRESS, LLC**

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is George V. Brown. My business address is 400 South Tryon Street, Charlotte, North Carolina 28202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am General Manager of Strategy, Policy, and Strategic Investment in the Distributed Energy Technology group at Duke Energy Corporation.

Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL EXPERIENCE.

A. I received a Bachelor of Arts in Economics at Harvard College and a Masters in Business Administration at New York University. I have been employed by Duke Energy since 1998 in a variety of Finance and Strategy roles. In my current role, I am responsible for the development and execution of business strategy and policy support related to distributed energy technology for Duke Energy's retail franchised utilities, including Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP" and, together with DEC, the "Companies" or "Duke"). This includes evaluation of legislation and regulation, such as the South Carolina Energy Freedom Act ("Act 62 or the "Act"), and implementation of customer programs such as those associated with Act 236, the South Carolina Distributed Energy Resource Act of 2014.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA ("COMMISSION")?

A. Yes. I have testified before the Commission on several occasions in the Companies' fuel cases, most recently in Docket No. 2018-1-E.

Q. ARE YOU INCLUDING ANY EXHIBITS IN SUPPORT OF YOUR TESTIMONY?

A. No.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to support the Companies' implementation of the requirements of the Public Utility Regulatory Policies Act of 1978 ("PURPA") as it relates to the "mandatory purchase" requirements from merchant power generators certificated as qualifying facilities ("QFs"). More specifically, my testimony provides an overview of the Companies' PURPA implementation and compliance with the recent requirements of the newly enacted South Carolina Energy Freedom Act ("Act 62" or, "the Act"), which now requires the Commission to biennially review and approve the Companies' implementation of PURPA in South Carolina.

II. ACT 62 AND SOUTH CAROLINA'S IMPLEMENTATION OF PURPA

Q. PLEASE PROVIDE THE COMMISSION AN OVERVIEW OF ACT 62 AS IT RELATES TO SOUTH CAROLINA'S IMPLEMENTATION OF PURPA AND THE PURPOSE OF THIS PROCEEDING.

A. On May 16, 2019, the Governor signed into law the South Carolina Energy Freedom Act, which, in part, addresses South Carolina's implementation of PURPA. Relevant to this proceeding, Act 62 enacted South Carolina Code Section 58-41-20(A), which sets a specific time period by which the Commission must approve each electrical utility's PURPA implementation framework, specifically including its Standard Offer Purchased Power Tariff, Standard Offer power purchase agreement ("PPA"), Standard Offer Terms and Conditions for the Purchase of Electric Power ("Terms and Conditions"), avoided cost methodologies, form PPAs for small power producer QFs that do not qualify for the standard offer ("Large QF"), and a Notice of Commitment to Sell form ("Notice of Commitment Form," or "the Form"). Pursuant to Act 62, the Companies' Standard Offer Purchased Power Tariff, PPA, and Terms and Conditions are available to small power producers that are 2 megawatts ("MW") in size or smaller.[1]

[1] S.C Code 65-41-10(15).

Q. PLEASE PROVIDE THE COMMISSION WITH A GENERAL EXPLANATION OF PURPA AND ITS ORIGINAL PURPOSE.

A. While I am not an attorney, I have had occasion to become familiar with Section 210 of PURPA and the Federal Energy Regulatory Commission's ("FERC") regulations implementing PURPA through my role at the Companies.

PURPA was enacted in 1978 in response to the mid-1970s energy crisis, to promote conservation of oil and natural gas by electric utilities, thereby lessening the country's dependence on foreign oil, and ultimately intending to control costs for consumers. PURPA requires electrical utilities to purchase the output of "qualifying facilities" or "QFs" at a cost not to exceed the utility's "incremental cost of alternative energy" or, as defined by the FERC in its 1980 rulemaking order to implement PURPA, Order No. 69, the utility's "avoided cost."[2] This is often called the "mandatory purchase obligation," as it requires utilities to purchase all of the output of these facilities at the QF owner's election.

Congress also decided that these facilities should be exempt from certain financial and rate regulation burdens imposed on traditional public utilities, effectively exempting these generators from federal or state regulatory oversight of their books and cost of service.[3] Accordingly, other than establishing the avoided

[2] *See* 16 U.S.C. § 824a-3(a), (d); 18 C.F.R. 292.304(a); *Final Rule Regarding the Implementation of Section 210 of the Public Utility Regulatory Policies Act of 1978*, Order No. 69, FERC Stats. & Regs. ¶ 30,128 (1980) ("Order No. 69").

[3] 16 U.S.C. § 824a-3(e)(1); *FERC v. Miss.*, 456 U.S. 742, 759 (affirming Congress' authority to exempt QFs from State laws and regulations in enacting PURPA).

cost rates and terms offered by utilities to QFs and regulating their interconnection to the utility's grid, the Commission has little authority to regulate QFs' operations.

Q. PLEASE EXPLAIN THE DIFFERENCE BETWEEN "SMALL POWER PRODUCERS," AS SPECIFICALLY ADDRESSED IN ACT 62, AND "QUALIFYING FACILITIES," WHICH PURPA REGULATES.

A. The requirements of PURPA apply to all QFs, which are comprised of two classes of generators: cogeneration facilities meeting certain operational and efficiency requirements and facilities defined as "small power producers."[4] The General Assembly was specific in Act 62 in that its directive for the Commission to more closely review and approve the Companies' PURPA implementation framework under S.C. Code Section 58-41-20 only applies to "small power producers," as that term is defined in federal law.[5] Small power production facilities are defined as facilities which use biomass, waste, or renewable resources, including solar energy, wind energy or water, to produce electric power, and which, together with other facilities at the same site, have a generating capacity equal to or less than 80 MW.[6] Importantly, while the General Assembly's focus in Act 62 is on small power producers, the mandatory purchase requirements of PURPA extend to all QFs, not just small power producers. Therefore, the Companies are making their standard offer tariffs available to all QFs in compliance with PURPA and FERC's regulations.

[4] 18 C.F.R. § 292.201-205.
[5] S.C. Code Ann. § 58-41-10(14)
[6] 18 C,F.R. § 202.204.

Q. PLEASE EXPLAIN THE ROLE OF FERC AND THE ROLE OF THIS COMMISSION IN IMPLEMENTING PURPA.

A. Congress gave important roles to both FERC and to state regulatory commissions in implementing PURPA. As I understand it, Congress directed FERC to promulgate regulations to implement PURPA, while state regulatory authorities, such as this Commission, are ultimately responsible for state-by-state PURPA implementation in a manner consistent with FERC's regulations.[7]

In 1980, FERC issued its landmark rulemaking order, Order No. 69, which sets forth PURPA's implementing regulations.[8] Order No. 69 explains that state commissions are afforded "great latitude" in determining state PURPA policies because they are best suited to consider and balance PURPA's goals with the "economic and regulatory circumstances [that] vary from state to state and utility to utility."[9] Thus, PURPA provides the Commission authority to oversee the Companies' avoided cost rates and, as appropriate, to take into consideration local conditions and economic and regulatory circumstances, as the Commission determines appropriate to implement PURPA in South Carolina.

[7] *Policy Statement Regarding Comm'n's Enforcement Role Under Sec. 210 of the Public Utility Regulatory Policies Act of 1978*, 23 FERC ¶ 61,304, 61,644 (1983) (stating how state regulatory authorities are required to implement PURPA pursuant to section 210 either (1) through enactment of laws or regulations; (2) by application on a case-by-case basis; or, (3) by any other action reasonably designed to implement FERC's PURPA regulations).
[8] *See Order No. 69, supra* at n. 2.
[9] *Id.* at 12,231.

Q. DOES ACT 62 CONFER NEW JURISDICTION UPON THE COMMISSION TO DECIDE MATTERS RELATED TO PURPA?

A. No. Act 62 does not, as the Commission has always had the exclusive authority and responsibility to oversee the State's implementation of PURPA in compliance with the regulations established by FERC. In enacting PURPA in 1978, Congress established a framework directing FERC to prescribe regulations to implement PURPA and then authorizing state regulatory authorities such as this Commission to supervise the administration and implementation of PURPA in the states. Moreover, Act 62 expressly requires that any decision made by the Commission must be "consistent with PURPA and the Federal Energy Regulatory Commission's implementing regulations and orders . . ."[10]

Q. UNDER PURPA'S "MANDATORY PURCHASE OBLIGATION," IS THERE A LIMIT ON THE TOTAL AMOUNT OF POWER THAT THE COMPANIES MUST PURCHASE FROM QFS?

A. No. The utility is obligated to purchase power from every QF that commits itself to sell to the utility at the utility's avoided cost. However, as I explain further below, the Commission must ensure that the rates for purchase from QFs remain just and reasonable to the utility and do not exceed the utility's avoided cost, which may change over time as the utility's costs of purchasing power changes.[11]

[10] S.C. Code Ann. § 58-41-20(A).
[11] 16 U.S.C. § 824a-3(b); 18 C.F.R. § 292.304(a).

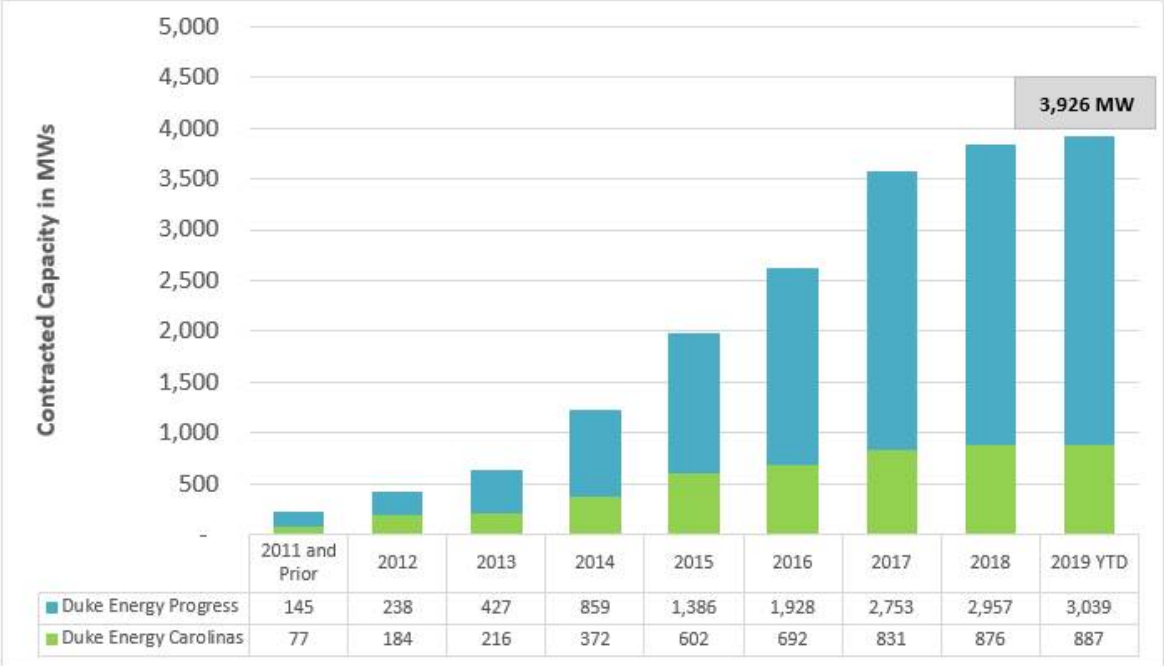
Q. WHO PAYS FOR ALL OF THE POWER THAT PURPA REQUIRES THE COMPANIES TO PURCHASE FROM QFS?

A. The Companies' customers pay for all purchases of QF power. The costs of QF power are a wholesale purchased power expense that is simply passed through to customers under the Companies' fuel clause.

Q. HOW MANY MEGAWATTS OF QF POWER ARE THE COMPANIES CURRENTLY OBLIGATED TO PURCHASE PURSUANT TO PURPA?

A. As of July 1, 2019, the Companies have almost 4,000 MW of QF PURPA power under contract on a system basis, with the significant majority of these QF purchase obligations being in DEP. Figure 1 depicts the significant year-over-year growth of QF PURPA contracts in DEP and DEC from 2011 to July 1, 2019.

Figure 1: DEC and DEP QF Capacity Under Contract[12]



Notably, the vast majority of this growth in QF contracts—over 3,500 MW—has resulted from recent surging development of solar QFs in North Carolina and South Carolina.

Q. GIVEN THAT CUSTOMERS ARE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THESE PURCHASES, HOW DID CONGRESS AND FERC DESIGN PURPA TO PROTECT RATEPAYERS?

A. In enacting Section 210 of PURPA, Congress expressly focused on controlling costs for consumers, requiring utilities to purchase power from QFs at rates that are just and reasonable to the utility's customers and in the public interest.[13] Congress

[12] Figure 1 reflects uncontrolled, must-take purchases from small power producer QFs at administratively-determined avoided costs in both North Carolina and South Carolina. Figure 1 does not include recent purchase obligations from QFs that have committed to sell to DEC and DEP under the Competitive Procurement of Renewable Energy ("CPRE") Program.

[13] 16 U.S.C § 824a-3(b)(1).

specifically directed FERC to develop regulations to implement PURPA, but, in doing so, explicitly forbade such rules from requiring a utility to pay a rate that would exceed the utility's "incremental cost" of its alternative options of generating or purchasing electric energy.[14] Congress was clear that PURPA was not intended to require the ratepayers of a utility to subsidize QFs.[15] Accordingly, PURPA limits the rates to be paid to QFs to the purchasing utility's incremental or "avoided" cost, which is designed to ensure customers remain indifferent between the costs of utility or non-utility generation and, thereby, prohibits unjustly subsidizing QFs by paying rates that exceed avoided costs.[16]

Q. DOES ACT 62 ALSO ADDRESS CONGRESS' ORIGINAL CONCERN IN ENACTING PURPA OVER THE COSTS THAT CONSUMERS SHOULD BEAR FROM PURCHASING QF POWER?

A. Yes. Act 62 goes even further than Congress or FERC in this regard, and specifically requires that the Commission's decisions in adjudicating this proceeding must "strive to reduce the risk placed on the using and consuming public."[17]

[14] 16 U.S.C § 824a-3(b); (d).

[15] Joint Explanatory Statement of the Committee of Conference, H.R. Conf. Rep. 95-1750 at p. 89, 95th Cong., 2d. Sess. 99 (1978) ("The provisions of [section 210] are not intended to require the rate payers of a utility to subsidize cogenerators or small power producers.").

[16] 16 U.S.C.§ 824a-3(b); *see also* 16 U.S.C.§ 824a-3(d) (1988); 18 C.F.R. § 292.301(b)(6); *Connecticut Light and Power Company*, 70 FERC ¶ 61,012, at 61,023, 61,028, *reconsideration denied*, 71 FERC ¶ 61,035, at 61,151 (1995), *appeal dismissed*, 117 F.3d 1485 (D.C. Cir. 1997) (invalidating state QF rates that exceed avoided costs).

[17] S.C. Code Ann. § 58-41-20(A).

Q. WHY IS THE GENERAL ASSEMBLY'S FOCUS ON REDUCING THE RISK OF PURPA IMPLEMENTATION ON CONSUMERS AN IMPORTANT CONSIDERATION?

A. Under PURPA and Act 62, the Commission sets the regulatory framework and price signals that QF developers will respond to over the next few years. Once this framework is established, the Commission has little control over the amount of new QF power that will be developed in response to these price signals, and ultimately the cost that customers will bear to pay for that new QF power. Even more significantly, once either DEC or DEP enters into a PPA with a QF, FERC has held that neither the Companies nor the Commission may modify the QF's contract if changes in the Companies' avoided costs occur in the future.[18] Effectively, the Companies' customers are locked into paying for the QF's power at the administratively determined avoided cost rates for the full term of the PPA, regardless of whether market conditions change and the value of the QF energy and capacity decreases. Notably, the "over-payment risk" associated with allowing QFs to lock in long-term administratively-determined avoided costs has been part of a broader national conversation regarding PURPA implementation, with the National Association of Regulatory Utilities Commissioners ("NARUC") recently advocating in a letter to FERC that calculating avoided costs should "move away

[18] *See e.g. See New York State Elec. & Gas Corp.*, 71 FERC ¶ 61,027 (1995) (denying Utility's requested relief to terminate long-term PURPA contracts above the utility's avoided cost and holding that PURPA does not prohibit rates for purchases from QFs that (1) are based on estimates of a utility's avoided costs calculated at the time the obligation is incurred and (2) subsequently differ from the utility's actual avoided costs at the time of delivery).

from the use of administratively determined avoided costs to their measurement through competitive solicitations or market clearing prices."[19]

The Companies' PURPA implementation experience in North Carolina from 2012 to 2017 when Session Law 2017-192 ("NC HB 589") was enacted also provides valuable insights into the risks to consumers when excessively high avoided cost rates fixed over longer-term contracts are coupled with unlimited PURPA development. Prior to 2012, DEC and DEP had relatively modest and diversified QF development in their North Carolina service territories, including small hydro facilities, biomass facilities and approximately 77 megawatts of small solar facilities that had contracted to sell power to DEC and DEP. From 2012 to 2017, North Carolina's implementation of PURPA, along with then-available federal and state tax credits and other economic incentives offered in that state, promoted surging development of an unprecedented number of solar QF generators. By the end of 2016, installed PURPA solar on the DEC and DEP systems in North Carolina had rapidly grown to over 1,600 MW of capacity, with installed solar in the smaller DEP service territory, primarily in eastern North Carolina, increasing to over 1,100 MW during this four year period.[20] The United States Energy Information Administration ("EIA") reported in August 2016 that North Carolina was leading all 50 states, including California, in PURPA-supported

[19] *National Association of Regulatory Utility Commissioners December 18, 2017 Letter to Federal Energy Regulatory Commission, Re: Public Utility Regulatory Policies Act of 1978 Regulatory Reform,* at *2, accessible at:* https://www.naruc.org/about-naruc/press-releases/naruc-pushes-for-purpa-reform-in-letter-to-ferc/ (last visited Aug. 8, 2019).

[20] *In the Matter of Biennial Determination of Avoided Cost Rates for Electric Utility Purchases from Qualifying Facilities – 2016*, Direct Testimony of Kendal C. Bowman, at 16-18, NCUC Docket No. E-100, Sub 148 (filed Feb. 21, 2017) ("Duke Bowman 2016 NC Avoided Cost Testimony").

utility-scale solar installed capacity[21] while another report issued in February 2016 found that ***60% of all installed PURPA solar*** across the entire country was located in North Carolina.[22] Importantly, this period of explosive growth of solar QFs occurred during a time of steadily declining natural gas prices which resulted in long-term avoided cost payment obligations significantly in excess of the value that the fixed-rate QF power was delivering relative to the Companies' declining costs to generate electricity or to purchase alternative power.

North Carolina's implementation of PURPA during this period drove this surging growth in QF solar and led the North Carolina Utilities Commission ("NCUC") to find in October of 2017 that the pace and level of solar QF development continuing unabated would pose serious risks of overpayment by the Companies' customers, as pre-existing PURPA policies had created a "distorted marketplace" for solar QF development.[23] As of July 2019, DEC and DEP are now committed to purchase the output from almost 4,000 MW of currently- or to-be installed QF generating facilities, almost all of which have committed to sell at avoided cost rates that now significantly exceed the Companies' current avoided cost. Importantly, North Carolina changed its PURPA implementation framework through legislation enacted in 2017, to eliminate the overly-generous, above-market avoided cost rates and to promote more controlled and cost-effective

[21] U.S. Energy Information Administration, North Carolina has more PURPA-qualifying solar facilities than any other state, (August 23, 2016), accessible at http://www.eia.gov/todayinenergy/detail.php?id=27632.
[22] Duke Bowman 2016 NC Avoided Cost Testimony, *supra* note 20 at 23; GTM Research, The Next Wave of U.S. Utility Solar, Procurement Beyond the RPS (February 2016) at 16, 28, accessible at https://www.greentechmedia.com/research/report/the-next-wave-of-us-utility-solar.
[23] *Order Establishing Standard Rates and Contract Terms for Qualifying Facilities*, at 15-16, N.C.U.C. Docket No. E-100, Sub 148 (Oct. 11, 2017) (*"2016 Sub 148 Order"*).

development of new solar resources through a competitive procurement framework, which I discuss further below.

Notably, North Carolina is not the only state to experience the risks and challenges of uncontrolled PURPA development where economic and regulatory circumstances change over time. For example, the Florida Public Service Commission recently approved a request by the Companies' affiliated utility in Florida to pay a QF $34.5 million to terminate the remaining five years of its 30 year contract because the fixed forecasted prices under the contract significantly exceeded the utility's now-prevailing marginal cost of alternative generation.[24] Recent testimony submitted to Congress on behalf of NARUC in 2018 highlighted similar experiences in Idaho and Montana where "administratively forecast[ed] avoided-cost rates have dramatically overstated the actual market price of electricity."[25]

Q. HAVE THE COMPANIES CALCULATED THE APPROXIMATE FINANCIAL OBLIGATION TO CUSTOMERS FOR PURCHASES OF EXISTING QF POWER?

A. Yes. Based on the almost 4,000 MW of solar QF power that have executed PPAs with the Companies under PURPA's mandatory purchase obligation, the estimated

[24] *Order Approving Termination of Power Purchase Agreement between Duke Energy Florida, LLC and Ridge Generating Station, L.P.,* Order No. PSC-2018-0532-PAA-EQ, FLPSC Docket No. 20180152-EQ (Nov. 13, 2018).

[25] *Legislation Addressing LNG Exports and PURPA Modernization, Hearing on H.R. 4476 Before the Subcomm.on Energy of the H. Comm. on Energy & Commerce,* 108th Cong. 34-66 (Jan. 9, 2018) (statement of Travis Kavulla, Vice Chairman, Nat'l Assoc. of Reg. Utility Commissioners); *see also* Regina L. Davis, *Montana's Kavulla Testifies on Modernization of PURPA at Energy Hearing,* NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS *(Jan. 19, 2018), available at:* https://ww about-naruc/press-releases/montana-s-kavulla-testifies-on-modernization-of-purpa-at-energy-hearing/.

financial obligation to customers is approximately $4.66 billion over the next approximately 15 years. As I mentioned earlier, the avoided cost rates paid to QFs in substantially all of the PPAs associated with the almost 4,000 MW of solar QF power is now in excess of the Companies' current avoided cost. If these contracts were valued at today's avoided cost rates, the Companies calculate that they would have a value of only $2.40 billion, as a result of declining avoided cost rates. This results in a currently forecasted over-payment of approximately $2.26 billion, as compared to the Companies' current avoided cost rates.

Q. WHAT ARE IMPORTANT CONSIDERATIONS TO PREVENTING SUCH OVERPAYMENT RISK TO CUSTOMERS IN THIS PROCEEDING?

A. Very simply, there are three primary components that contribute to the over-payment risk for customers under PURPA: (1) avoided cost rates, (2) length of contract, and (3) the volume of contracts. Paying above-market avoided cost prices over a long period of time for an infinite number of QF contracts results in the overpayment obligation I described earlier. Because this Commission cannot control the volume of contracts the Companies must enter into under PURPA and because Act 62 mandates that the Companies offer long-term ten-year contracts for significant QF capacity until the thresholds set in Act 62 are reached, it is imperative that the Commission ensure avoided cost rates are accurately calculated. As further discussed by Duke Witness Glen Snider, establishing avoided cost rates in this proceeding that achieve PURPA's objective of making customers indifferent between purchasing QF power or power generated by the utility's fleet of generating resources is of major importance to reducing the risks of PURPA

implementation for customers in this proceeding. In addition to appropriately calculating rates that reflect the Companies' future avoided costs and do not subsidize QFs—which, as I explain above, would be inconsistent with PURPA—Duke Witness Snider also emphasizes the importance of relying upon the most up-to-date inputs to calculate avoided costs for Larger QFs not eligible for the Standard Offer, as well as taking the specific characteristics of energy and capacity to be delivered by these Larger QFs into account when developing avoided cost rates.

Q. HAVE THE COMPANIES ALSO PURSUED OTHER OPTIONS FOR QFS TO SELL THEIR POWER TO DEC OR DEP UNDER LONGER FIXED CONTRACT TERMS AT RATES BELOW AVOIDED COSTS?

A. Yes. QFs located in South Carolina that seek to sell power for a term longer than the 10-year fixed term contract option provided for by Act 62 are eligible to participate in the Companies' Competitive Procurement of Renewable Energy ("CPRE") Program. The CPRE Program offers QFs the opportunity to compete to sell power over a 20-year contract term, and effectively limits the long-term financial exposure for consumers of administratively-determined avoided cost rates in favor of competitive procurement of controllable and dispatchable renewable energy facilities to be procured and contracted for at rates at or below Duke's current estimates of future avoided costs. The Companies support South Carolina QFs participating in the CPRE Program to deliver the most cost effective and reliable solar resources to meet customers' future energy needs. Solar QFs in South Carolina are also eligible to participate in the Companies' Green Source Advantage program in North Carolina, which has been approved by the NCUC.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.